



SEQUENCE LISTING

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Kulaveerasingam, Harikrishna

<120> A Molecular Marker

<130> 15179

<140> 10/028,346

<141> 2001-12-20

<150> AU PR2213

<151> 2000-12-20

<160> 9

<170> PatentIn version 3.0

<210> 1

<211> 573

<212> DNA

<213> oil palm

<220>

<221> CDS

<222> (1)..(573)

<400> 1

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Met	Pro	Gly	Leu	Thr	Ile	Gly	Asp	Thr	Ile	Pro	Asn	Leu	Glu	Val	Glu	
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acc	acg	cac	ggg	aag	atc	cgg	atc	cac	gac	tac	gtc	ggc	gat	ggt	tgg	96
Thr	Thr	His	Gly	Lys	Ile	Arg	Ile	His	Asp	Tyr	Val	Gly	Asp	Gly	Trp	
			20					25					30			

gcc	atc	atc	ttc	tcc	cat	ccc	gcg	gat	ttc	aca	ccc	gtg	tgc	acg	acg	144
Ala	Ile	Ile	Phe	Ser	His	Pro	Ala	Asp	Phe	Thr	Pro	Val	Cys	Thr	Thr	
		35					40					45				

gag	ctg	ggg	aag	atg	gcg	gcg	tac	gcg	gag	gag	ttc	gag	aaa	aga	ggg	192
Glu	Leu	Gly	Lys	Met	Ala	Ala	Tyr	Ala	Glu	Glu	Phe	Glu	Lys	Arg	Gly	
	50					55					60					

gtg	aag	ctg	cta	ggc	atc	tcc	tgc	gac	gat	gtc	aag	tgc	cac	atg	gaa	240
Val	Lys	Leu	Leu	Gly	Ile	Ser	Cys	Asp	Asp	Val	Lys	Cys	His	Met	Glu	
65					70					75					80	

tgg	atc	aaa	gac	gtc	gag	gcc	tac	acg	ccc	gga	tgt	cgc	gta	aca	tat	288
Trp	Ile	Lys	Asp	Val	Glu	Ala	Tyr	Thr	Pro	Gly	Cys	Arg	Val	Thr	Tyr	
				85					90					95		

cca	att	gta	gcc	gac	ccc	aag	agg	gag	gtg	atc	aaa	ctg	ctg	aac	atg	336
Pro	Ile	Val	Ala	Asp	Pro	Lys	Arg	Glu	Val	Ile	Lys	Leu	Leu	Asn	Met	
			100					105					110			

gta	gac	cct	gag	gag	aag	gac	tca	aat	ggg	aac	cag	ctc	ccg	tca	cgg	384
Val	Asp	Pro	Glu	Glu	Lys	Asp	Ser	Asn	Gly	Asn	Gln	Leu	Pro	Ser	Arg	
		115					120					125				

gcc	ctt	cat	ata	gtg	ggc	cct	gat	aag	aag	gtt	aag	ctg	agc	ttt	ctg	432
Ala	Leu	His	Ile	Val	Gly	Pro	Asp	Lys	Lys	Val	Lys	Leu	Ser	Phe	Leu	
	130					135					140					

tac	ccg	gcg	tcg	acg	ggg	cgg	aac	atg	gag	gag	gtg	gtc	agg	gtg	ttg	480
Tyr	Pro	Ala	Ser	Thr	Gly	Arg	Asn	Met	Glu	Glu	Val	Val	Arg	Val	Leu	
145					150					155					160	

gag	tcg	ctt	cag	aag	acg	atc	aag	tat	aag	gtg	gcg	acc	cca	gcg	aac	528
Glu	Ser	Leu	Gln	Lys	Thr	Ile	Lys	Tyr	Lys	Val	Ala	Thr	Pro	Ala	Asn	
				165					170					175		

tgg	aaa	ccg	ggg	gag	ccg	gtg	gtg	atc	tcg	ccc	gag	cgt	gtc	caa		573
Trp	Lys	Pro	Gly	Glu	Pro	Val	Val	Ile	Ser	Pro	Glu	Arg	Val	Gln		
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<210> 2
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 <212> PRT
 <213> oil palm

<400> 2																
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Thr	Thr	His	Gly	Lys	Ile	Arg	Ile	His	Asp	Tyr	Val	Gly	Asp	Gly	Trp	
			20					25					30			
Ala	Ile	Ile	Phe	Ser	His	Pro	Ala	Asp	Phe	Thr	Pro	Val	Cys	Thr	Thr	
		35					40					45				
Glu	Leu	Gly	Lys	Met	Ala	Ala	Tyr	Ala	Glu	Glu	Phe	Glu	Lys	Arg	Gly	
	50					55					60					
Val	Lys	Leu	Leu	Gly	Ile	Ser	Cys	Asp	Asp	Val	Lys	Cys	His	Met	Glu	
65				70					75					80		
Trp	Ile	Lys	Asp	Val	Glu	Ala	Tyr	Thr	Pro	Gly	Cys	Arg	Val	Thr	Tyr	
			85						90					95		
Pro	Ile	Val	Ala	Asp	Pro	Lys	Arg	Glu	Val	Ile	Lys	Leu	Leu	Asn	Met	
			100					105					110			
Val	Asp	Pro	Glu	Glu	Lys	Asp	Ser	Asn	Gly	Asn	Gln	Leu	Pro	Ser	Arg	
		115					120					125				
Ala	Leu	His	Ile	Val	Gly	Pro	Asp	Lys	Lys	Val	Lys	Leu	Ser	Phe	Leu	
	130					135					140					
Tyr	Pro	Ala	Ser	Thr	Gly	Arg	Asn	Met	Glu	Glu	Val	Val	Arg	Val	Leu	
145					150					155					160	
Glu	Ser	Leu	Gln	Lys	Thr	Ile	Lys	Tyr	Lys	Val	Ala	Thr	Pro	Ala	Asn	
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Trp	Lys	Pro	Gly	Glu	Pro	Val	Val	Ile	Ser	Pro	Glu	Arg	Val	Gln		
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<220>
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 <222> (28)..(600)

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atc ccg aac ctg gag gtg gag acc acg cac ggg aag atc cgg atc cac 102
Ile Pro Asn Leu Glu Val Glu Thr Thr His Gly Lys Ile Arg Ile His
10 15 20 25

gac tac gtc ggc gat ggt tgg gcc atc atc ttc tcc cat ccc gcg gat 150
Asp Tyr Val Gly Asp Gly Trp Ala Ile Ile Phe Ser His Pro Ala Asp
30 35 40

ttc aca ccc gtg tgc acg acg gag ctg ggg aag atg gcg gcg tac gcg 198
Phe Thr Pro Val Cys Thr Thr Glu Leu Gly Lys Met Ala Ala Tyr Ala
45 50 55

gag gag ttc gag aaa aga ggg gtg aag ctg cta ggc atc tcc tgc gac 246
Glu Glu Phe Glu Lys Arg Gly Val Lys Leu Leu Gly Ile Ser Cys Asp
60 65 70

gat gtc aag tgc cac atg gaa tgg atc aaa gac gtc gag gcc tac acg 294
Asp Val Lys Cys His Met Glu Trp Ile Lys Asp Val Glu Ala Tyr Thr
75 80 85

ccc gga tgt cgc gta aca tat cca att gta gcc gac ccc aag agg gag 342
Pro Gly Cys Arg Val Thr Tyr Pro Ile Val Ala Asp Pro Lys Arg Glu
90 95 100 105

gtg atc aaa ctg ctg aac atg gta gac cct gag gag aag gac tca aat 390
Val Ile Lys Leu Leu Asn Met Val Asp Pro Glu Glu Lys Asp Ser Asn
110 115 120

ggg aac cag ctg ccg tca cgg gcc ctt cat ata gtg ggc cct gat aag 438
Gly Asn Gln Leu Pro Ser Arg Ala Leu His Ile Val Gly Pro Asp Lys
125 130 135

aag gtt aag ctg agc ttt ctg tac ccg gcg tcg acg ggg cgg aac atg 486
Lys Val Lys Leu Ser Phe Leu Tyr Pro Ala Ser Thr Gly Arg Asn Met
140 145 150

gag gag gtg gtc agg gtg ttg gag tcg ctt cag aag acg atc aag tat 534
Glu Glu Val Val Arg Val Leu Glu Ser Leu Gln Lys Thr Ile Lys Tyr
155 160 165

aag gtg gcg acc cca gcg aac tgg aaa ccg ggg gag ccg gtg gtg atc 582
Lys Val Ala Thr Pro Ala Asn Trp Lys Pro Gly Glu Pro Val Val Ile
170 175 180 185

tcg ccc gag cgt gtc caa tgaggaggcc aagcagatgt tcccgcaggg 630
Ser Pro Glu Arg Val Gln
190

agttgagaat gtgaatctcc catcgaagaa ggattacctc cgcttcacaa aagtctaattg 690

ttgttggggc gtccgtgata tgttcataag tggtttctgg ggcccgactg tatactgtgt 750

tgtcgtgtta tatgtttgtg ttggtatcat gtagtttgtg ccttagggga gtttgatat 810

taattttagt tttatgttaa ttattaaagt ttttaccatg agattaaaaa aaaaaaaaaa 870

aaa 873

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 <213> oil palm

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 20 25 30
 Ala Ile Ile Phe Ser His Pro Ala Asp Phe Thr Pro Val Cys Thr Thr
 35 40 45
 Glu Leu Gly Lys Met Ala Ala Tyr Ala Glu Glu Phe Glu Lys Arg Gly
 50 55 60
 Val Lys Leu Leu Gly Ile Ser Cys Asp Asp Val Lys Cys His Met Glu
 65 70 75 80
 Trp Ile Lys Asp Val Glu Ala Tyr Thr Pro Gly Cys Arg Val Thr Tyr
 85 90 95
 Pro Ile Val Ala Asp Pro Lys Arg Glu Val Ile Lys Leu Leu Asn Met
 100 105 110
 Val Asp Pro Glu Glu Lys Asp Ser Asn Gly Asn Gln Leu Pro Ser Arg
 115 120 125
 Ala Leu His Ile Val Gly Pro Asp Lys Lys Val Lys Leu Ser Phe Leu
 130 135 140
 Tyr Pro Ala Ser Thr Gly Arg Asn Met Glu Glu Val Val Arg Val Leu
 145 150 155 160
 Glu Ser Leu Gln Lys Thr Ile Lys Tyr Lys Val Ala Thr Pro Ala Asn
 165 170 175
 Trp Lys Pro Gly Glu Pro Val Val Ile Ser Pro Glu Arg Val Gln
 180 185 190

<210> 5
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 <212> DNA
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<400> 5
 aggaggattg tgcagag

17

<210> 6
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 <213> oil palm

<400> 6
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18

<210> 7
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 <213> Hordeum vulgare

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Ser Thr His Gly ₂₀ Lys Ile Arg Ile His ₂₅ Asp Tyr Val Gly ₃₀ Asn Gly Tyr			
Val Ile Leu ₃₅ Phe Ser His Pro Gly ₄₀ Asp Phe Thr Pro Val ₄₅ Cys Thr Thr			
Glu Leu ₅₀ Ala Ala Met Ala ₅₅ Asn Tyr Ala Lys Glu ₆₀ Phe Glu Lys Arg Gly			
Val Lys Leu Leu Gly ₇₀ Ile Ser Cys Asp Asp ₇₅ Val Gln Ser His Lys ₈₀ Glu			
Trp Thr Lys Asp ₈₅ Ile Glu Ala Tyr Lys ₉₀ Pro Gly Ser Lys Val ₉₅ Thr Tyr			
Pro Ile Met ₁₀₀ Ala Asp Pro Asp Arg Ser ₁₀₅ Ala Ile Lys Gln ₁₁₀ Leu Asn Met			
Val Asp Pro ₁₁₅ Asp Glu Lys Asp ₁₂₀ Ala Gln Gly Gln ₁₂₅ Leu Pro Ser Arg Thr			
Leu His ₁₃₀ Ile Val Gly Pro ₁₃₅ Asp Lys Val Val Lys ₁₄₀ Leu Ser Phe Leu Tyr			
Pro Ser Cys Thr Gly ₁₄₅ Arg ₁₅₀ Asn Met Asp Glu ₁₅₅ Val Val Arg Ala Val ₁₆₀ Asp			
Ser Leu Leu Thr ₁₆₅ Ala Ala Lys His Lys ₁₇₀ Val Ala Thr Pro Ala ₁₇₅ Asn Trp			
Lys Pro Gly ₁₈₀ Glu Cys Val Val Ile ₁₈₅ Ala Pro Gly Val Ser ₁₉₀ Asp Glu Glu			
Ala Lys Lys ₁₉₅ Met Phe Pro Gln Gly ₂₀₀ Phe Glu Thr Ala ₂₀₅ Asp Leu Pro Ser			
Lys Lys ₂₁₀ Gly Tyr Leu Arg Phe ₂₁₅ Thr Lys Val			

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 <213> Arabidopsis thaliana

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Thr Thr His Asp ₂₀ Lys Phe Lys Leu His ₂₅ Asp Tyr Phe Ala Asn ₃₀ Ser Trp
Thr Val Leu ₃₅ Phe Ser His Pro Gly ₄₀ Asp Phe Thr Pro Val ₄₅ Cys Thr Thr
Glu Leu ₅₀ Gly Ala Met Ala ₅₅ Lys Tyr Ala His Glu ₆₀ Phe Asp Lys Arg Gly
Val Lys Leu Leu Gly ₇₀ Leu Ser Cys Asp Asp ₇₅ Val Gln Ser His Lys ₈₀ Asp
Trp Ile Lys Asp ₈₅ Ile Glu Ala Phe Asn His ₉₀ Gly Ser Lys Val ₉₅ Asn Tyr

Pro⁹ Ile Ile Ala Asp Pro Asn Lys Glu Ile Ile Pro Gln Leu Asn Met
 100 105 110
 Ile Asp Pro Ile Glu Asn Gly Pro Ser Arg Ala Leu His Ile Val Gly
 115 120 125
 Pro Asp Ser Lys Ile Lys Leu Ser Phe Leu Tyr Pro Ser Thr Thr Gly
 130 135 140
 Arg Asn Met Asp Glu Val Leu Arg Ala Leu Asp Ser Leu Leu Met Ala
 145 150 155 160
 Ser Lys His Asn Asn Lys Ile Ala Thr Pro Val Asn Trp Lys Pro Asp
 165 170 175
 Gln Pro Val Val Ile Ser Pro Ala Val Ser Asp Glu Glu Ala Lys Lys
 180 185 190
 Met Phe Pro Gln Gly Phe Lys Thr Ala Asp Leu Pro Ser Lys Lys Gly
 195 200 205
 Tyr Leu Arg His Thr Glu Val Ser
 210 215

<210> 9
 <211> 272
 <212> PRT
 <213> Brassica campestri

<400> 9
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 Val Leu Pro Ala Thr Lys Ser Ser Leu Leu Pro Ser Pro Ser Leu Ser
 20 25 30
 Phe Leu Pro Thr Leu Ser Ser Pro Ser Pro Ser Ala Ser Leu Arg Ser
 35 40 45
 Leu Val Pro Leu Pro Ser Pro Gln Ser Ala Ser Ser Ser Arg Arg Ser
 50 55 60
 Phe Ala Val Lys Gly Gln Thr Asp Asp Leu Pro Leu Val Gly Asn Lys
 65 70 75 80
 Ala Pro Asp Phe Glu Ala Glu Gly Val Phe Asp Gln Glu Phe Ile Lys
 85 90 95
 Phe Ile Lys Val Lys Leu Ser Asp Tyr Ile Gly Lys Lys Tyr Val Ile
 100 105 110
 Leu Phe Phe Leu Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
 115 120 125
 Thr Ala Phe Ser Asp Arg Tyr Ala Glu Phe Glu Lys Leu Asn Thr Glu
 130 135 140
 Val Leu Gly Val Ser Val Asp Ser Val Ser Val Phe Ser His Leu Ala
 145 150 155 160
 Gly Val Gln Thr Asp Arg Lys Phe Gly Gly Leu Gly Asp Leu Asn Tyr
 165 170 175

Pro Leu Ile Ser Asp Val Thr Lys Ser Ile Ser Lys Ser Phe Gly Val
 180 185 190
 Leu Ile His Asp Gln Gly Ile Ala Leu Arg Gly Leu Phe Ile Ile Asp
 195 200 205
 Lys Glu Gly Val Ile Gln His Ser Thr Ile Asn Leu Gly Ile Gly Arg
 210 215 220
 Ser Val Asp Glu Thr Met Arg Thr Leu Gln Ala Leu Gln Tyr Ile Gln
 225 230 235 240
 Glu Gly Pro Gly Glu Val Cys Pro Ala Gly Trp Lys Pro Gly Glu Lys
 245 250 255
 Ser Met Lys Pro Asp Pro Lys Leu Ser Lys Glu Leu Phe Ser Ala Ile
 260 265 270